2002 Recycled Water Task Force
FUNDING/CALFED Coordination Subgroup
White Paper
November 12, 2002

Introduction

The 2002 Recycled Water Task Force, established by Assembly Bill 331 (Goldberg), was passed by the Legislature and approved by Governor Davis on October 7, 2001 (Water Code Section 13578). The Task Force is a cooperative effort of the California Department of Water Resources, the State Water Resources Control Board, and the Department of Health Services. The Task Force is charged with evaluating the current regulatory framework and to identify the opportunities, obstacles and disincentives to the safe use of recycled water. The recommendations of the Task Force must be reported to Legislature by July 1, 2003.

Organized and administered by the Department of Water Resources, the Task Force is chaired by Richard Katz, a member of the State Water Resources Control Board. The Task Force is composed of water recycling policy makers, including experts on the safe and beneficial uses of recycled water. Additional participants include federal, State and local government representatives, community participants, and environmental, industrial, and academic representatives. The Task Force established the following six workgroups to perform in-depth evaluations of specified issues listed in Appendix A.

- Science & Health / Indirect Potable Reuse,
- Public Education and Outreach,
- Plumbing Code / Cross-Connection Control,
- Funding / CALFED Coordination,
- Regulations & Permitting and
- Economics

This white paper is the product of the Funding/CALFED Coordination Workgroup charged with examining funding issues and making recommendations for improving funding opportunities for the public water recycling projects. This is in accordance with Section 1 (b) (5) of AB 331 that states:

> *The need to augment state water supplies using water use efficiency strategies identified in the CALFED Bay-Delta Program. In its report pursuant to subdivision (a) the department shall identify ways to coordinate with CALFED to assist local communities in educating the public with regard to the statewide water supply benefits of local recycling projects and the level of public health protection ensured by compliance with uniform statewide water recycling criteria developed by the State Department of Health Services in accordance with Section 13521.*

Water recycling is a major part of the CALFED Programmatic Record of Decision, August 28, 2000. CALFED implementation agencies that participate in the funding of water recycling projects currently forecast the amount of funding their programs receive from proposed legislation. These agencies include the State Water Resources Control Board (SWRCB), Department of Water Resources (DWR), and the United States Bureau of Reclamation (USBR). Thus, the Funding/CALFED Coordination workgroup in its deliberation and evaluation among other issues, considered the following items:

i. CALFED Programmatic Record of Decision Implementation Plan.
ii. Recommendations of the Southern California Comprehensive Water Reclamation and Reuse Study.
iii. Recommendations of northern California water and wastewater agencies prepared by the San Francisco Bay and Sacramento-San Joaquin Delta area water recycling program.
iv. Case studies and other efforts that have been or are being conducted to further advance the safe use of recycled water in California and elsewhere.

The Funding/CALFED Coordination Subgroup is distinct from the Economics Workgroup in that the former is focused on the process to provide funding for water recycling projects. The later, meanwhile, addresses the economics issues related to performing cost and benefit analysis for water recycling projects. It is anticipated that the cost/benefit information developed will be useful in refining the funding process recommendations.

The Role of CALFED in Statewide Water Recycling Efforts

The CALFED Bay-Delta Program is a cooperative effort of the State and federal agencies with management or regulatory responsibilities for the Bay-Delta. The Water Use Efficiency (WUE) Program is an integral part of the CALFED initiative. The program is dedicated to accelerating the implementation of cost-effective actions to conserve and recycle water throughout the state. A key strategy – articulated in CALFED's, August 2000, Record of Decision (ROD) - is to implement an incentive-based program that provides grants for actions contributing to CALFED objectives but are not locally cost-effective. Consistent with the Record of Decision, CALFED's strategy in coordinating water recycling grants and loans is to validate cost and performance of recycling projects, and to ensure that projects are selected in an open and scientifically credible process.

Local Role in Funding of Water Recycling Projects

Local agencies are key in the funding and development of water recycling projects. In addition to the operating agency's contribution, local funding provides Pay-for-Performance incentives. Examples of successful Pay-for-Performance programs, that provide agencies a financial incentive to build projects, include the Metropolitan Water District of Southern California's Local Resources Program and the San Diego County Water Authority's Reclaimed Water Development Fund. In order for the Task Force to make recommendations for improvements to

funding and CALFED coordination, it will be necessary to understand the role local agencies play.

The Subcommittee agrees on the importance of acquiring data on the current status of local funding contributions to water recycling projects. The attached matrix in, Appendix B, has been developed as an example of the way that information on local, state, and federal funding sources and their associated amounts can be identified and tracked. The matrix, or a similar tracking tool, should be expanded to incorporate data on as many water recycling projects in California as possible. Based on an analysis of the data contained in the tracking tool, general observations concerning current funding trends can then be developed to determine the State and federal financial support needed to further implement and encourage water recycling projects.

Recycled water marketing efforts to inform policy makers, constituents, and potential users of the benefits related to recycled water supplies are key to securing local funding and support for development of projects. This effort should include consideration of all future sources of water (local, imported, recycled, desalinization, and conserved water), and the important role recycled water serves in the augmentation of the State's water supply.

It is recommended that an assessment of the current water recycling marketing efforts in the State be undertaken. First, the California Division of the WateReuse Association would be asked to undertake a marketing status survey of its membership. Additionally, the SWRCB and the DWR would survey their local agency contacts on the same topic. Based on the information gathered, trends in marketing successes and difficulties encountered could be compiled and shared with other agencies.

Local agencies must also prioritize the funding and development of their water recycling projects. A comprehensive review of factors included in this process must be undertaken. Urban Water Management Plans, as well as Integrated Resource Plans, are tools commonly used by water agencies to set priorities for the identification of future water resource supply options.

These plans look at projected population growth and the need to serve new areas, as well as the types of water demand (i.e. irrigation, agricultural, commercial or industrial) to be met. Finally, the plans evaluate the various water resource options against established planning objectives including, but not limited to, ensuring (1) supply reliability, (2) supply diversity, (3) acceptable water quality, (4) minimized cost impacts, (5) maximized supply adaptability, and (6) protection of the natural environment, while ensuring community benefits.

Wastewater agencies may consider water recycling projects as an alternative method of reducing wastewater effluent discharges, providing water for the natural habitat, or decreasing pollutant loading in a water body. In conclusion, water recycling projects are prioritized locally based on a combination of water supply and wastewater diversion planning tools.

The Role of Regional Recycling Studies

Regional recycling studies are one proven method of prioritizing funding for the identification and development of implementable water recycling projects in California. Two very large scale regional recycling plans have been completed in the State, the Southern California

Comprehensive Water Reclamation and Reuse Study and the Bay Area Regional Water Recycling Program. These regional investigations are partnerships of local, State and federal agencies dedicated to building consensus regarding the feasible use of recycled water in their respective areas. In addition to these very large scale plans, smaller regional plans such as the San Diego County Water Authority Regional Recycled Water System Study and the South Bay Water Recycling Long Term Master Plan have been developed.

The Southern California Comprehensive Water Reclamation and Reuse Study and the Bay Area Regional Water Recycling Programs were developed in partnership with the State and federal agencies and have already involved a significant amount of consensus in prioritizing projects. All of these regional plans should be recognized as key information in obtaining State and federal funding. Funding agencies should use these plans as guidance for allocating funds for water recycling projects throughout the State.

State and Federal Role in the Funding of Water Recycling Projects

Various State and federal agencies within California administer funding programs to provide financial assistance for public water recycling projects. Typically, local agencies apply for funding for such projects from programs administered by, the SWRCB, the DWR, and the USBR. The SWRCB and DWR funding programs operate within the State CALFED funding umbrella. The federal funds appropriated to the USBR are administered for projects throughout the state. They are not federal appropriated funds from within the CALFED agency. Currently, USBR recycling and reuse funds are appropriated under the authority of the Reclamation Wastewater and Groundwater Study and Facilities Act of 1992 (Title XVI of Public Law 102-575 as amended). Additionally, funding from the United States, Corps of Engineers has been appropriated on a project basis for specific use in Southern California.

The Subcommittee has identified an absence of coordination among State and federal funding sources for water recycling efforts. The Subcommittee examined the characteristics of the three major funding programs and recommends coordinating efforts among the programs to assist local agencies in acquiring State and federal funds for local projects.

Each State and federal funding programs has a different application process and no requirements exist for the agencies to coordinate their funding efforts. Having such variation in funding is beneficial if the different processes results in more funding for water recycling, thereby serving the different water recycling projects statewide. However, the varying processes can be cumbersome to local applicants seeking funding from multiple sources. The following sections describe the State and federal funding programs available to local agencies.

I. State Water Resources Control Board (SWRCB) Program

Through its Office of Water Recycling, the SWRCB administers a continuous application process that commits funding to applicants for planning, design and construction of water recycling projects on a “first-ready, first-served” basis. Funding is available for applicants with projects that increase (augment) the State and/or local water supply through the

increased use of water recycling. A funding priority list including all potential recycled water projects is maintained.

A continuous funding application process is beneficial for water recycling projects that include a critical timing element. Examples include:

(1) Regional Water Quality Control Board and/or Department of Health Services mandated deadline
(2) Established users currently in need of recycled water
(3) Urgency to make additional potable water available by augmenting the water supply with recycled water (i.e. development, drought years, etc), and
(4) Construction of facilities with other concurrent capital improvement projects

Additionally, the SWRCB offers grant funding for facility planning studies. The local agency must equally match planning grant funds with a local funding match.

Activities that are eligible for facility planning grant funds include planning efforts to determine:

(1) Preliminary project construction, operation and maintenance costs
(2) Proposed revenue program needed to support the estimated project costs
(3) Recycled water users and demands
(4) Preliminary agreements or mandatory use ordinances necessary to assure recycled water usage, and
(5) Draft environmental documents in accordance with State and federal environmental laws.

Upon completion of a final project report including the information gathered during the planning stage of the project, the SWRCB offers design and construction funding to applicants ready to proceed with the development of construction contract documents, and then construction. Funding is released to the funding recipient on a construction reimbursement basis.

II. Department of Water Resources Program

In contrast to the SWRCB's continuous application process, the DWR offers a competitive funding process. Upon appropriation of funding, the DWR issues a Request-For-Proposal (RFP). Applicants interested in funding must submit the required information by an announced deadline. Proposals are evaluated and funding recipients identified.

Projects are rated based on four primary criteria:

(1) Costs and benefits
(2) Technical/scientific merit
(3) Qualifications of the applicants and cooperators, and
(4) Outreach, community involvement and acceptance.

The benefits derived from a competitive process are not necessarily to the projects, but to the overall statewide recycling efforts. The competition established in an RFP process improves the quality of projects funded. By comparing various proposals, the process allows for projects with the greatest benefit to be selected (i.e. the lowest cost to the State per acre-feet/year of recycled water).

The DWR recognizes that water recycling is emerging as a major component of water resources management. The DWR, through its Water Recycling and Desalination Branch, provides technical assistance through statewide coordination, partnerships, regional studies and planning, and data collection to include the following objectives:

- Provide technical, biophysical and engineering-oriented knowledge on water recycling and desalination issues
- Support, promote, and provide outlets for scientific research on water recycling production and use
- Inform policy makers, legislators, and regulators of water recycling opportunities and impediments
- Increase the public awareness, image, and credibility of water recycling projects
- Play an integral part of CALFED's Water Use Efficiency Common Program, and
- Help locals with information in water recycling planning process.

III. United States Bureau of Reclamation: Title XVI Designated Funding Program

A USBR water recycling project is defined as a project that reclaims and reuses municipal, industrial, domestic, or agricultural wastewater, or naturally impaired groundwater and/or surface waters. Project water can be used for a variety of purposes including environmental restoration, fish and wildlife, groundwater recharge, municipal, domestic, industrial, agricultural, power generation or recreation. The USBR provides funding for both the planning and construction of recycling and reuse projects. Planning funds may be made available for either appraisal or feasibility level study efforts. The local sponsor can, by itself or in cooperation with USBR, initiate the planning of a Title XVI project. The USBR may cost share in these efforts, subject to the availability of appropriated funds.

Federal construction funds are provided only for projects specifically authorized by Congress pursuant to the various sections of Title XVI of Public Law 102-575, as amended. Typically, the USBR makes a funding recommendation on construction of authorized projects in the President's annual budget request to the Congress. Projects not yet authorized for construction will require specific congressional authorization before USBR requests appropriated funds from Congress through the Title XVI program.

Projects funded by Title XVI must meet the following requirements prior to receiving federal funding from USBR:

(1) A feasibility report that complies with the provisions of Title XVI must be completed by USBR or the non-federal project sponsor,
(2) The Secretary has determined that the non-federal project sponsor is financially capable of funding its share of the project's costs; and

(3) The Secretary has approved a cost-sharing agreement with the non-Federal project sponsor which commits the non-Federal project sponsor to funding its proportionate share of the project's construction costs on an annual basis.

In addition, the project must be in compliance with NEPA and other environmental laws acquire construction funding. After the requirements above have been met, both the USBR and the funding recipient sign an agreement. Funds are typically disbursed during construction on a reimbursement basis.

Once funding is identified for a project in the Title XVI Program, the local agency project may also be eligible for funding from other federal sources including CALFED funding. The example here is that if the Title XVI project is identified to receive $15.0 million and only $5.0 million has been appropriated through the Title XVI appropriation, the remaining $10.0 million could be made available through CALFED/Federal funding as long as the total federal share of the project does not exceed 25 per cent of the total project cost or $20.0 million which ever is lower as referenced in Section 1631(d). However, non-Title XVI projects can not receive federal funding from appropriated Title XVI funds. The procedures followed by the USBR in carrying out the provisions of the Title XVI program are provided for in the authorizing legislation.

Recommendations

Greater water recycling benefits can be achieved with coordination among agencies that serve as funding sources for water recycling research, studies, and projects. There are many direct and indirect benefits from water recycling projects. To ascertain all the benefits, such as, monetary savings, yield (Ac-Ft), and potable water savings that result from each project, more information is required. Proper coordination can assist local agency efforts in finding the correct balance of funding to meet specific project financial needs. To achieve coordination among funding sources, the Subcommittee recommends the following:

1. A revised funding procedure shall be developed to provide local agencies with assistance in potential State and federal funding opportunities. The SWRCB will facilitate the establishment of a Committee to implement the recommendations of this report. Assistance and guidance will be provided to such agencies as follows:

   A. The SWRCB will facilitate a newly established Water Recycling Funding Coordination Committee (Committee) to coordinate applicant funding needs with the appropriate funding agencies. The members of the Committee will include representatives from the SWRCB, DWR, USBR, CALFED, the California WateReuse Association and other stakeholders.

      In reviewing and developing recommendations to provide the technical assistance/support and the funding solicitation process, the Committee will solicit input from local agencies that have received state and federal funding for recycled water projects. The Committee will guide the local agency through the identification of:

(1) Correct funding source(s),
(2) Accountability measures to be placed on the funding recipient to assure delivery of recycled water, and
(3) Monitoring and assessment reporting requirements to be implemented after completion of the funded project.

B. The Committee will establish quantifiable objectives to be used in the review of a proposed project. Objectives shall include: 1) the local, regional, and state benefits, and; 2) non-water supply benefits, resulting from the project. When reviewing proposed projects, the Committee will recommend modifications to maximize the benefit to the State's water supply.

C. The Committee will work cooperatively with the SWRCB and USBR, streamlining project selection while ensuring an open and transparent process for setting selection criteria, peer review and public review of the project selection will also be provided. The Committee will work to ensure that projects have an appropriate level of scientific review, and ongoing monitoring and data analysis.

D. The Committee shall maintain a listing of State and federally funded projects. This list should build upon the preliminary list provided in Appendix C. The list of projects should include detailed project cost and water supply yield information including annual cost and yield, similar to the detail provided in Appendix B. The list should also, to the extent possible, include locally funded projects.

2. State funding agencies will use information from completed regional studies when determining the prioritization of funding requests.

3. Public information to support education and outreach efforts will be provided by having funding agencies:

   A. Present public funding availability at statewide conferences, and
   B. Establishing an Annual Water Recycling Funding Information Workshop to assist participants in preparing funding application packages

4. The SWRCB and USBR should be provided with the resources to perform comprehensive analysis of past recycling performance (costs and benefits) and projection of future performance. The SWRCB and USBR should conduct these analyses jointly in an open and peer-reviewed process.

   These analyses should quantify recycling water yield in acre-feet per year and delineate yield from potential or planned. The analyses should list other benefits of recycling (such as water supply reliability), and where possible to quantify these benefits. The analyses should provide costs in equivalent units such as equivalent annual cost.

   The estimate of past performance should be based upon a database of recycling projects including projects that have received State and federal funding and attempt to list other projects as well. The database should include the level of detail listed in Appendix B.

5. Funding sources should be expanded to include sustainable State funding for the DWR's water recycling, technical assistance and research, including flexibility to work on local and regional planning process, on-going studies of emerging issues, and new technology.

Appendix A

Appendix A

The 2002 Recycled Water Task Force created six (6) Workgroups; 1) Science and Health / Indirect Potable Reuse, 2) Public Education and Outreach, 3) Plumbing Code / Cross Connection Control, 4) Funding / CALFED Coordination, 5) Regulations and Permitting and, 6) Economics, to address, evaluate, analyze, filter and prioritize specific issues and determine underlying issues if any. This list of issues is provided below by workgroup.

1. Science and Health / Indirect Potable Reuse

- Groundwater recharge and contamination
- Surface water augmentation
- Applied research on wastewater reuse by academic institutions
- Pharmaceutical and trace elements
- Construction, design, operation and maintenance
- Testing and certification to insure safe use of recycled water
- Epidemiological studies update to provide current assessment of the science regarding public health and water resuse
- The need to reconvene the indirect potable reuse committee

2. Public Education and Outreach

- Determine current public perceptions and acceptance of water recycling
- Provide a consistently high funding for public education programs
- Additional testing and certification to ensure the safe use of recycled water
- Update epidemiological studies and provide an overall current assessment of the science regarding public health and the use of recycled water
- Address social equity in the distribution of recycled water
- Educate farmers and growers who are often reluctant to use recycled water as allowed in Title 22
- Review “best management practices” for recycled water
- Consider demographic issues and audience analysis for outreach

3. Plumbing Code / Cross Connection Control

- Impracticality for installing backflow devices in old buildings
- Shutdowns for pressure testing for cross connection
- Plumbing code “Tertiary” definition conflicts with Title 22
- Spacing requirements in commercial buildings
- Recommend improvement to the Plumbing Code and to Titles 17 and 22

- Appendix J conflicts with the water code
- Include professionals knowledgeable in the domain to assist in developing regulations

4. Funding / CALFED Coordination

- Funding for recycling projects
- Grants for public education and outreach
- Funds for research addressing emerging health issues
- Coordination among recycled water regulators
- Complexity of State subsidy process
- Tax break and water credits
- Incentive for land developers to install dual systems
- Support for the surface and groundwater storage

5. Regulations and Permitting

- Incidental runoff violations of NPDES permits ("One-Molecule" rule)
- Drought waiver for discharge limits
- Regional brine lines for discharging brines
- Spill reporting, dewatering and discharge
- State regulation of recycled water as wastewater
- Satellite wastewater treatment plants
- Coordination with AB885 on-site wastewater treatment
- Conflicts with downstream beneficial uses
- Recycled water producers 'liability to users' violations
- Seasonal storage/support for surface and groundwater storage
- Costly repetitive engineering reports for each site
- Regulation of water softeners in regards to impact on recycled water quality
- Regulatory updates in light of current epidemiological and scientific assessment
- Uses of action levels as a compliance mechanism

6. Economics

- Outline costs and benefits of water recycling and provide rigorous analysis of the true costs and benefits
- Economic justification of water recycling should be based on comparison with the cost of new sources of water, not existing sources

- The costs of recycling projects are often borne locally even though the benefits of water reuse often accrue statewide
- Clarify the economic criteria for the state funding of water recycling projects
- Consider the positive environmental impacts of water recycling upstream since recycling alleviates the demand for freshwater from stream and lakes
- Consider the benefits of recycling in complying with water quality requirements for discharges into receiving waters
- Consider the negative environmental impact of recycling on receiving waters due to reducing discharge for the purpose of reuse
- Anti-growth proponents may view recycled water as a supplemental source to fuel growth
- Costly repetitive Engineering reports needed for each site
- Costs related to dewatering and discharge. Must dewater to sewer, can't dewater to creeks
- Costs related to cross-connection program
- Costs related to spill reporting
- Need for seasonal storage facilities

Appendix B

Sample of Water Recycling Projects (SDCWA and SFPUC Service Areas - FY 2001-02)				
Name	Identifying Information			
	Description	Owner	Region	Type
	San Diego County Water Authority			
Fallbrook Public Utility District Water Reclamation Project	The project consists of teriary treatment, a new pump station, chlorine contact tank, and approx. 3.6 miles of 6-inch to 18-inch diameter pipeline. provides recycled water for irrigation.	Fallbroook PUD	Northern San Diego County	Recycling conveyance capabilities/ Tertiary Wastewater Treatment/ Recycled wtr. system improvements.
Padre Dam Reclaimed Water System, Phase I	The project includes the upgrade of the existing 1 MGD Santee Water Reclamation Facility to produce 2 MGD of recycled water and the construction of a distribution system. The proposed project components include tertiary filters, wastewater recovery tank modifications, chlorine contact basins, chlorine storage/feed facility modifications, a recycled water storage reservior, and related valaves, appurtenances, and ancillary facilities.	Padre Dam Municipal Water District	East San Diego County	Recycling conveyance capabilities/ Tertiary Wastewater Treatment/ Recycled wtr. system improvements.
North City Water Reclamation Project	The project consists of a 30 MGD capacity treatment plant and one 9 MG storage tank along with a 46 mile recycled water distribution system. Project was originally intended to provide water repurification (sending water to nearby reservoir).	City of San Diego	San Diego County	Recycling conveyance capabilities/ Tertiary Wastewater Treatment/ Recycled wtr. system improvements.
San Pasqual Water Reclamation Project, Phase I	This project consisted of a 1.1 MGD water reclamation plant consisting of a rotary drum screen and rotary disk filters for primary treatment, water hyacnths for secondary treatment, and coagulation/sedimenration/filtration for tertiary treatment. Other project components consisted of an above ground storage facility, a recycled water distribution system, and injection/extraction wells for storage in the Hodges Groundwater Basin.	City of San Diego	San Diego County	Recycling conveyance capabilities/ Secondary and Tertiary Wastewater Treatment/ Recycled wtr. system improvements/ injection-extraction wells.
San Elijo Water Reclamation System	The project includes the construction of a tertiary treatment facility, 2 storage reservoirs, 3 pump stations, and a distribution system. End-users are located predominately in the cities of Encinitas, Solana Beach, and Del Mar.	San Elijo JPA	Northern San Diego County	Recycling conveyance capabilities/ Tertiary Wastewater Treatment/ Recycled wtr. system improvements.
	San Francisco Public Utility Commission			
South Bayside System Authority (SBSA) and the City of Redwood City	First Step Recycled Water Project	South Bayside System Authority (SBSA) and the City of Redwood City	San Francisco Bay Region	tertiary wastewater treatment plant
South Bayside System Authority (SBSA) and the City of Redwood City	Next Step Recycled Water Project	South Bayside System Authority (SBSA) and the City of Redwood City	San Francisco Bay Region	tertiary wastewater treatment plant
Patrick Sweetland	Tertiary Recycled Water Project	Daly City	SF Bay	

Name	Status			Project Funding Sources					
				Local $ (Includes all Local Agencies)					
				Owner Agency ($)				Wholesaler Incentives - MWD ($)	Wholesaler Incentives - SDCWA ($)
	Code*	Detail	Owner Committed Operating Revenue	Annual Bond Payment (P&I)	Annual Debt Service (P&I)	Other Local Funding	Total Local Funding		
Sample of Water Recycling Projects (SDCWA and SFPUC Service Areas - FY 2001-02)									
		San Diego County Water Authority							
Fallbrook Public Utility District Water Reclamation Project	O	Project operational	$275,695				$275,695	$107,750	$43,100
Padre Dam Reclaimed Water System, Phase I	O	Project operational	$1,640,436	$0	$889,747	$25,446	$2,555,629	$157,175	$62,870
North City Water Reclamation Project	O	Project operational		Annual Bond Payment - 2,421,670		Annual Cash Cost - $2,230,409		$765,600	$306,240
San Pasqual Water Reclamation Project, Phase I	I	Feasibility study currently underway proposing the retooling of the plant to a conventional R/O system. Temporarily Shutdown. Plant closed in December 2001.				Annual Cash Cost - $522,038		$24,200	$9,680
San Elijo Water Reclamation System	O	Project operational					$1,395,113	$173,950	$69,580
		San Francisco Public Utility Commission							
South Bayside System Authority (SBSA) and the City of Redwood City	O	The First Step Project, the first phase of the City's Recycled Water Project, was implemented as a pilot program in 2000. Existing treatment facilities and distribution infrastructure were utilized with minor modifications. Recycled water was delivered at no cost to customers during the 2000 and 2001irrigation seasons.	City of Redwood City	none	none	none	Funded by SBSA's Stage 2 expansion program.	$0 cost to customers	none
South Bayside System Authority (SBSA) and the City of Redwood City	P	The Next Step Project involves the design and construction of permanent recycled water treatment facilities at SBSA and new distribution infrastructure.		none	none	none	Currently funded by City of Redwood City. The City is exploring additional sources of funding.	under development	none
Patrick Sweetland	D	Bids Opened 10/14	$ 14,255,647	1,324,000	631,250	1,000,000	Fees/Charges		

* Code: O-Operational, P-Planning, D-Design, C-Construction, I-Inoperational

Name	Sample of Water Recycling Projects (SDCWA and SFPUC Service Areas - FY 2001-02)									
	Project Funding Sources					Recycled Water Demand				
	State $			Federal $	Total Annual Funding	Planned Max-Demand (AF/Y)	Verified Demand (FY 2002) (AF)	Average Verified Demand (AF/Y)	Estimated R. Water Delivery Date	Delivered (# of Years)
	Grants	Annual State Loan Payment (P&I)	Interest Rate/ Term							
	San Diego County Water Authority									
Fallbrook Public Utility District Water Reclamation Project		$79,408			$505,953	1200	431	628	Oct. 1989	12.25
Padre Dam Reclaimed Water System, Phase I	$0	$0	2.8% & 3.1%			850	674	Unknown	Mar-98	5
North City Water Reclamation Project		None	N/A	Federal Bureau of Reclamation Grants - $17,338,975		17500	3,062	2,466 AFY (average of past three FY demands)	Sep-97	5
San Pasqual Water Reclamation Project, Phase I		None	N/A	Federal Bureau of Reclamation Grants - $2,555,693		1100	93 - partial year	249	Oct. 94	7.25
San Elijo Water Reclamation System		$12,633,522	20year - 2.5%	$4,154,250	$18,426,415	1600	696	452	Sept. 2000	2
	San Francisco Public Utility Commission									
South Bayside System Authority (SBSA) and the City of Redwood City	none					139	56.41	50.51	Jun-02	
South Bayside System Authority (SBSA) and the City of Redwood City	none					1154	N/A	N/A	April-04	
Patrick Sweetland	$1,440,000 (est)	TBD	2.9%/20		TBD	2,136 (est)		na	Jan, 2004	50

Name	Sample of Water Recycling Projects (SDCWA and SFPUC Service Areas - FY 2001-02)						
	Cost/Revenue						Remarks
	Capital Cost ($)*1	Annual O & M Costs ($/Yr)	Other Costs ($)	Ave. Annual Cost ($/AF/yr.) *2	Annual Costs ($/AF/yr.)	Total Annual Revenue	
	San Diego County Water Authority						
Fallbrook Public Utility District Water Reclamation Project	$135,600	$333,806		$531	$747	$426,545	Cumulative Demand 4342.4AF
Padre Dam Reclaimed Water System, Phase I	$186,704	$1,372,374			$2,588		
North City Water Reclamation Project	Total Capital Costs = $67,360,434	$782,196		$1,774		$1,067,046	Captial costs, O&M costs, annual bond payments, and federal grant totals were taken from the MWD Audit Report completed on March 14, 2001. FY 02 totals were used for determining AFY demand and calculating annual revenue. Total Capitol Costs exclude grants and contributions; Annualized Capital Cost = 4,652,079
San Pasqual Water Reclamation Project, Phase I	Total Capital Costs = $7,002,582	$104,293		$2,515		$32,409	Capital costs, O&M costs, annual bond payments, and federal grant totals were taken from the MWD Audit Report completed on June 18, 2001. Average FY demand (249 AF) was used for determining average unit cost. San Pasqual Plant will be back online around 2006 Construction on the distribution system extension is expected to begin in 2007-08. Total Capital costs exclude grants and contributions; Annualized Capital Cost = 522,038
San Elijo Water Reclamation System	$834,000	$561,113		$2,004		-$926,384	State loan and federal grant funding totals are from project inception to date.
	San Francisco Public Utility Commission						
South Bayside System Authority (SBSA) and the City of Redwood City		$60,000	$145,000	$913	$3,605	NA	
South Bayside System Authority (SBSA) and the City of Redwood City		N/A	$275,000	NA	NA	NA	
Patrick Sweetland		na		na	967,610 (est)	375,460 (est)	

*1:Capital Cost $ (i.e. Capital Improvement Program/ Constuction Costs)
*2. Current average annual unit cost

Notes:

Source of Information:	This information was provided by the San Diego County Water Authority (SDCWA) and San Francisco Public Utility Commission (SFPUC). This list of projects is not comprehensive or representative, but is a readily available sample used to demonstrate the level of project detail that could be collected.
Sources:	This summary includes five projects in the San Diego County Water Authority and two projects in the San Francisco Public Utility Commission's jurisdiction. Many of the local funding sources are not given. Loans from state and federal agencies would be local costs and are not included in the data sheets provided. Some of the projects may be considered treatment projects as opposed to recycling projects. The verified demand includes only recycled water that SDCWA provides incentives for (or counts) and may be only for 2002. The average verified demand is the quantity received from the local agency. This number was calculated by the agency and not verified with SDCWA. Capital costs are in dollars and could not be verified for total capital cost for the life of the project. Other costs were included and not defined.

Appendix C

Appendix C

Summary: State and Federal Recycling Project Funding 1992 - Present

Water Recycling Costs & Benefits

Info. Source	Project	Planning ($)	Con-struction ($)	Planned Yield (AF/Yr)
USBR	100% RW Injection to Seawater Intrusion Barriers	$ 100,000	Unknown	7840
USBR	Alamitos Barrier Recycled Water Project	$ 125,000	Unknown	5000
SWRCB	American Canyon, City of	$ 75,000	Unknown	Unknown
USBR	Big Bear Recycled Water Plan	$ 403,600	Unknown	500
SWRCB	Burbank, City of	Unknown	$ 3,130,000	539
USBR	Calleguas MWD	Unknown	$ 90,595,000	17890
USBR	Calleguas MWD	Unknown	$ 63,635,000	0
USBR	Calleguas MWD	Unknown	$ 20,025,000	20000
USBR	Calleguas MWD	Unknown	$ 9,103,000	4580
USBR	Calleguas MWD	Unknown	$ 7,442,000	9000
USBR	Calleguas/United Brackish Water Treatment Facility	$ 50,000	Unknown	3000
SWRCB	Camrosa WD	$ 75,000	Unknown	Unknown
USBR	Carlsbad MWD	Unknown	$ 36,925,000	7050
SWRCB	Carlsbad MWD	Unknown	$ 2,330,000	1412
SWRCB	Carlsbad MWD (Grant)	Unknown	$ 5,000,000	3500
SWRCB	Carlsbad MWD (Loan)	Unknown	$ 19,000,000	Unknown
USBR	Carson Area Expansion	$ 250,000	Unknown	23600
USBR	Castaic Lake - Recycled Water System Master Plan Update	$ 72,435	Unknown	17000
USBR	Central Basin Customer Development	$ 200,000	Unknown	2200
USBR	Central Basin MWD	Unknown	$ 48,394,000	10000
USBR	Central Basin/West Basin Interconnector	$ 100,000	Unknown	250
SWRCB	Central Contra Costa SD (see also 1988 Law)	Unknown	$ 1,810,000	413
SWRCB	Central Contra Costa SD (see also 96 Law)	Unknown	$ 1,110,000	Unknown
USBR	Chandler Quarry Groundwater Recharge Project	$ 215,000	Unknown	2000
SWRCB	Chino Hills, City of	Unknown	$ 400,000	400
USBR	City of Beaumont - Water Reclamation Project	$ 150,000	Unknown	2000
USBR	City of Escondido	Unknown	$ 67,923,000	3200
USBR	City of Murietta Recycled Water Conversion Projects	Unknown	$ 100,000	620
USBR	City of Oceanside	Unknown	$ 9,070,000	3000
USBR	City of Ontario Recycled Water Masterplan	$ 415,000	Unknown	12000
USBR	City of Pasadena	Unknown	$ 2,700,000	900
USBR	City of Poway	Unknown	$ 8,445,000	1300
USBR	City of Poway	Unknown	$ 3,710,500	1000
USBR	City of San Diego	Unknown	$ 248,335,531	33000
USBR	City of San Diego	Unknown	$ 97,393,591	7300
USBR	City of San Diego	Unknown	$ 80,606,000	6700
USBR	City of San Diego	Unknown	$ 4,862,435	0
USBR	City of Simi Valley RW Distribution System	$ 387,000	Unknown	4700
USBR	Coldwater Basin Recharge Project	$ 530,000	Unknown	7260
USBR	Colorado Lagoon Storm Drain Filtration Project	$ 150,500	Unknown	160
USBR	Contructed Treatment Wetlands for Stormwater Pollution	$ 250,000	Unknown	Unknown
SWRCB	Corona, City of	Unknown	$ 5,000,000	3200
USBR	Crescenta Valley Water District Recycled Water Feasibility Study	$ 45,000	Unknown	5000
SWRCB	Daly City, City of	Unknown	$ 1,400,000	400
USBR	DeForest Park Natural Filtration Project	$ 194,000	Unknown	1200
SWRCB	DERWA (Grant)	Unknown	$ 5,000,000	2300
SWRCB	DERWA (Loan)	Unknown	$ 19,000,000	Unknown
USBR	Dominguez Gap RW Project	$ 100,000	Unknown	12000
SWRCB	EBMUD (East Bayshore)	Unknown	$ 4,400,000	800
USBR	El Dorado Lake Recycled Water Pilot Project	$ 167,550	Unknown	200
USBR	El Toro Water District Intertie to the Irvine Desalter Project	$ 65,000	Unknown	Unknown
USBR	EMWD Recycled Water Masterplan	$ 555,000	Unknown	Unknown
SWRCB	Escondido, City of (see also SRF)	Unknown	$ 12,000,000	3232
USBR	Extraction Well Water Reuse Project	$ 75,000	Unknown	700
SWRCB	Fallbrook PUD	$ 75,000	Unknown	Unknown

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Water Recycling Costs & Benefits				
Info. Source	Project	Planning ($)	Con-struction ($)	Planned Yield (AF/Yr)
USBR	Feasibility Study of RW Use and Groundwater Recharge in the Santa Paula Groundwater Basin	$ 64,838	Unknown	3361
USBR	Gafner Brine Discharge Pipeline Project	$ 50,000	Unknown	1000
USBR	Green Acres Project Phase 2 - Huntington Beach Expansion	$ 60,000	Unknown	900
USBR	Groundwater Recovery Enhancement and Treatment (GREAT) Program	$ 242,300	Unknown	5000
USBR	GWR System - Phase I	$ 620,000	Unknown	78400
USBR	GWR System - Phase II and III	$ 2,210,000	Unknown	67200
USBR	Hansen Area Water Recycling Project	$ 730,000	Unknown	2000
USBR	Harbor Water Recycling Project	$ 430,000	Unknown	4000
USBR	Hemet/ San Jacinto Recycled Water Infrastructure	$ 500,000	Unknown	12320
USBR	Hi-Desert WD	Unknown	Unknown	Unknown
USBR	Hyperion Pump Station Expansion	$ 200,000	Unknown	44800
USBR	I-15 Recycled Water Transmission Main	Unknown	$ 225,000	300
USBR	IEUA - Fourth Street Regional Pipeline	$ 234,612	Unknown	4156
USBR	IEUA - Hickory Basin Project	$ 67,125	Unknown	861
USBR	IEUA - Interim RW/GW Recharge Basin Project	$ 22,500	Unknown	1079
USBR	IEUA - Interim RW/GW Recharge Pipeline	$ 22,500	Unknown	1079
USBR	IEUA - Pine Avenue Regional Pipeline	$ 48,205	Unknown	570
USBR	IEUA - Regional Plant No. 1 Recharge Basin	$ 95,850	Unknown	Unknown
USBR	IEUA - Regional Plant No. 3 Recharge Basins	$ 415,725	Unknown	500
USBR	IEUA - Regional Plant No. 4 Recharge Basins	$ 66,399	Unknown	8200
USBR	IEUA - RP-1/RP-4 Regional RW Pump Station	$ 471,450	Unknown	60000
USBR	IEUA - RW Pipeline to Etiwanda Power Plant	$ 49,500	Unknown	2150
USBR	IEUA - Six Groundwater Monitoring Wells	$ 105,000	Unknown	3000
USBR	IEUA - Turner Basin 1	$ 96,825	Unknown	341
USBR	IEUA - Turner Basins 2, 3, and 4	$ 178,500	Unknown	924
USBR	IEUA - Turner Basins 5, 8, and 9	$ 173,775	Unknown	618
USBR	IEUA - Whittram Regional Pipeline	$ 72,725	Unknown	1566
USBR	IEUA - Wineville Basin Project	$ 144,975	Unknown	1243
USBR	IEUA - Wineville Regional Pipeline	$ 83,318	Unknown	2524
USBR	Integrated Chino Arlington Desalination System	$ 69,000,000	Unknown	16000
USBR	Integration of the Former Los Alisos Water District RW System	$ 35,000	Unknown	50
USBR	Irvine Business Complex RW Service Expansion	$ 40,000	Unknown	480
USBR	Irvine Industrial Complex RW Service Expansion	$ 80,000	Unknown	250
SWRCB	Irvine Ranch WD (Grant)	Unknown	$ 3,900,000	2500
USBR	Joint Seasonal Storage Facility	$ 50,000	Unknown	6000
USBR	Joint Transmission Main and Operational Storage Reservoir	$ 180,000	Unknown	4800
USBR	Kiwana Pavilion Project	$ 535,000	Unknown	Unknown
USBR	LA Forebay RW Project	$ 285,000	Unknown	Unknown
USBR	LA Zoo Water Recycling Project	$ 195,000	Unknown	1500
USBR	Lake Calavera Recycled Water Reservoir	$ 100,000	Unknown	750
SWRCB	Lake County SD	Unknown	$ 3,680,000	2000
USBR	Lake Elsinore Water Recycling Infrastructure	$ 670,000	Unknown	28000
USBR	Las Virgenes - Malibu Country Clug/Golf Course Main Extension	$ 340,000	Unknown	500
USBR	Las Virgenes - RW Line Extension - Thousand Oaks Blvd.	$ 100,000	Unknown	320
SWRCB	Las Virgenes MWD-Ph I	Unknown	$ 110,000	65
SWRCB	Las Virgenes MWD-Ph II	Unknown	$ 1,150,000	284
USBR	Las Virgenes -Transfer Recycled Water to Calleguas Municipal Water District (pipeline to Tierra Rejada)	$ 400,000	Unknown	5000
USBR	Leucadia CWD	Unknown	$ 16,684,495	1700
SWRCB	Leucadia CWD	Unknown	$ 840,000	394
USBR	Long Beach WD	Unknown	$ 80,000,000	10000
USBR	Long Beach WD	Unknown	$ 35,306,000	4000
SWRCB	Long Beach, City of	Unknown	$ 3,450,000	3025
SWRCB	Los Angeles Co. San. Dist. (Puente Hills)	Unknown	$ 5,000,000	2640
USBR	Los Angeles DWP	Unknown	$ 60,060,000	15000

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Water Recycling Costs & Benefits				
Info. Source	Project	Planning ($)	Con-struction ($)	Planned Yield (AF/Yr)
USBR	Los Angeles DWP	Unknown	$ 54,851,202	35000
USBR	March AFB Wastewater Reclamation and Reuse Project	$ 270,000	Unknown	1000
SWRCB	Marina Coast WD	$ 75,000	Unknown	Unknown
USBR	Michelson Water Reclamation Plant (MWRP) Expansion	$ 655,000	Unknown	13400
USBR	MNWD Phase 5 Recycled Water Distribution Expansion	$ 169,000	Unknown	1100
SWRCB	Modesto, City of	$ 75,000	Unknown	Unknown
USBR	Montebello Forebay	$ 165,000	Unknown	50000
USBR	Moreno Valley Brineline Extension	$ 500,000	Unknown	Unknown
USBR	New Development Projects	$ 290,000	Unknown	6040
USBR	New Outfall Pipeline	$ 800,000	Unknown	5500
USBR	Northern Recycled Water System Expansion	$ 80,000	Unknown	2000
USBR	Nutrient Removal Evaluation	$ 150,000	Unknown	5500
USBR	OC Regional Brine Line	$ 110,000	Unknown	Unknown
USBR	OC Regional Brine Line - North County	$ 805,000	Unknown	Unknown
USBR	Oceanside, Fallbrook, Camp Pendleton Integrated Reclaimed Water System	$ 250,000	Unknown	5500
SWRCB	OCWD	Unknown	$ 5,000,000	1000
USBR	Olive Avenue Reservoir and Booster Station	$ 10,000	Unknown	250
SWRCB	Olivehurst PUD	$ 75,000	Unknown	Unknown
USBR	Olivenhain MWD	Unknown	$ 12,693,000	2800
USBR	Olivenhain MWD	Unknown	$ 2,055,000	500
SWRCB	Olivenhain MWD	Unknown	$ 850,000	Unknown
SWRCB	Orange Cnty WD (GAP II Newport Bch)	Unknown	$ 4,380,000	783
SWRCB	Orange County Water District (Tustin)	Unknown	$ 4,790,000	3271
USBR	Orange County WD/OCSD	Unknown	$ 355,910,000	50000
USBR	Orange/Santiago Area Reclaimed Water System Extension	$ 35,000	Unknown	1700
USBR	Otay WD	Unknown	$ 86,110,000	9200
SWRCB	Oxnard, City of	$ 75,000	Unknown	Unknown
USBR	Padre Dam MWD	Unknown	$ 39,438,602	2000
SWRCB	Padre Dam MWD	Unknown	$ 5,000,000	839
USBR	Pendleton Golf Course and F/O Pipeline Conversion	$ 2,356,000	Unknown	5500
USBR	Phase III, Recycled Water Master Plan	$ 150,000	Unknown	2000
USBR	Point Loma WWTP Reclaimed Water System	$ 215,000	Unknown	560
USBR	Pomona Recycled Water System Expansion	$ 55,000	Unknown	1000
USBR	Port Hueneme Water Agency	Unknown	$ 15,309,742	3000
USBR	Recycled Water Expansion	$ 70,000	Unknown	2200
USBR	Recycled Water Master Plan Update	$ 250,000	Unknown	20000
USBR	Redlands Reclamation Project	$ 500,000	Unknown	8000
SWRCB	Redlands, City of	Unknown	$ 5,000,000	5600
SWRCB	Rincon Del Diablo MWD	Unknown	$ 2,150,000	425
SWRCB	Rincon Del Diablo MWD	Unknown	$ 420,000	425
USBR	Riverside Recycled Water Masterplan	$ 150,000	Unknown	12000
USBR	Running Springs Recycle Project	$ 60,000	$ 2,000,000	300
SWRCB	Sacramento RCSD	$ 75,000	Unknown	Unknown
USBR	Salinity Management for Escondido, Hodges and San Pasqual Subbasins	$ 100,000	Unknown	9700
USBR	San Diego Regional Strategy 9	$ 9,841,000	Unknown	9900
USBR	San Elijo JPA	Unknown	$ 16,499,511	1550
USBR	San Fernando Road RW Trunk Line	$ 135,000	Unknown	4100
USBR	San Gabriel Basin WQA	Unknown	$ 81,639,092	30000
USBR	San Joaquin Reservoir Conversion to Reclaimed Water Storage	$ 40,000	Unknown	2500
SWRCB	San Jose, City of	Unknown	$ 4,600,000	600
USBR	San Luis Rey Plant Expansion	$ 300,000	Unknown	5500
USBR	San Pasqual Valley Water Reclamation Plant	$ 60,000	Unknown	1120
SWRCB	San Simeon CSD	$ 75,000	Unknown	Unknown
USBR	San Timoteo Management Plan- Recharge Masterplan Element	$ 296,000	Unknown	10000
SWRCB	Santa Barbara, City of(Phase II)	Unknown	$ 5,000,000	633

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Water Recycling Costs & Benefits				
Info. Source	Project	Planning ($)	Con-struction ($)	Planned Yield (AF/Yr)
USBR	Santa Margarita River Live Stream Discharge Program	$ 675,000	Unknown	10976
SWRCB	Santa Margarita WD	Unknown	$ 5,300,000	2185
USBR	Santa Maria Recycling Facility Expansion Project	$ 200,000	Unknown	600
USBR	Sepulveda Constructed Wetlands	$ 307,500	Unknown	61600
USBR	Sewer Pipeline and Manhole Rehabilitation	$ 100,000	Unknown	1000
USBR	Simi Valley Brackish Water Treatment Facility	$ 25,000	Unknown	5000
SWRCB	SLO, City of	Unknown	$ 3,400,000	400
SWRCB	Sonoma Valley Co. San. District	$ 75,000	Unknown	Unknown
SWRCB	South San Luis Obispo	$ 75,000	Unknown	Unknown
USBR	Sweetwater Authority	Unknown	$ 32,530,000	7200
USBR	Temecula Valley Brineline Extension	$ 550,000	Unknown	Unknown
USBR	Temecula Valley Effluent Pipeline	$ 350,000	Unknown	5000
USBR	Temescal Basin Groundwater Management Program Phase I, II, & III	$ 685,000	Unknown	15273
USBR	Tia Juana CWD	Unknown	$ 13,867,208	2500
USBR	Tijuana Aquifer Groundwater Study Project	$ 800,000	Unknown	Unknown
USBR	Turtle Rock Crest Reclaimed Water Expansion	Unknown	$ 5,000	220
USBR	Tustin Area Reclaimed Water System Extension	$ 65,000	Unknown	540
USBR	UCI Housing Reclaimed Water Conversion	$ 5,000	Unknown	374
USBR	Upper San Gabriel Valley MWD	Unknown	$ 22,326,908	10000
SWRCB	Victor Valley Reclamation Auth.	$ 75,000	Unknown	Unknown
USBR	Water Replenishment District	Unknown	$ 26,350,000	8000
USBR	West Basin - Palos Verdes RW Expansion	$ 150,000	Unknown	1200
USBR	West Basin Customer Development	$ 500,000	Unknown	10000
USBR	West Basin MWD	Unknown	$ 201,501,174	70000
SWRCB	West Basin MWD	Unknown	$ 5,000,000	6000
USBR	West Covina Recycled Water Project	$ 45,000	Unknown	1000
USBR	Yucaipa Valley Regional Water Supply Renewal Project	$ 240,000	Unknown	13400
Total Recycling Projects (191 Projects)		**$ 108,530,707**	**$2,103,226,991**	**1,228,160**

Notes:

SWRCB Source: This information was obtained from Office of Water Recycling, Water Reclamation Loan and Construction Programs. Included are the projects from the, 1984, 1988, 1996, and 2000 Bond Laws that were awarded state funding after 1991.

The Planned Yield (AF/Yr) provides an estimate of the amount of wastewater expected to be recycled. In most cases, this amount has not been verified. This information is considered preliminary and subject to change, since, agencies had limited time to review this tabulated information, some projects may be listed more than once.

USBR Source: The Southern California Area Office, USBR supplied information from the Southern California Water Recycling Projects Initiative (started in 2000). These are planned projects solicited from the local agencies by USBR.